

# **Dapper '1'**

**for**

**sequenced MIDI piano**

**Peter McKenzie Armstrong**

**2011**

**[Full score]**

# Dapper '1'

Tinkering one day with the Fibonacci series, I wondered what might happen if, instead of adding always just the most recent two terms to get the one following, I were to add every pair of terms to get for each pair a new term in between:

starting with1 2

one iteration giving1 3 2

the next1 4 3 5 2

and so on.

I wrote a short generator (J-language script) and ran it to the point (in iteration #9) where it had output all integers between 1 and 88 -- the piano range -- at least once.

Except for this sampling's unique final item, all its terms within range had occurred from 2 to 10 times each, with a few dozen others exceeding it.

Given these circumstances, I shaped a progression of equal durations, as follows:

- at each instance, a term within key range is allocated to one of 10 unique-volumed tracks, according to the term's occurrence tally at that instance;
- for each term (MIDI key number) so assigned, a rest is placed in corresponding position on all other tracks;
- terms above range are realized as rests on all tracks (i.e., their time component is preserved);
- an additional track, a copy of #1 but with the rest slots filled in by extension of their just-previous notes, integrates and highlights the pattern of first occurrences.

# Scores

*Dapper '1'* is written in full score, as it has few enough tracks to fit a 11x17 page. *Dreadful '0'*, with too many to fit, is written instead as separate parts. In any case, neither score is intended to facilitate human performance. The music is for auto-sequencer. I did, however, want to give its overall patterning visual realization. Hence this style -- with alto clef exclusively (Middle C in the middle!) to spare the eye an incessant disruption of clef changes. The LilyPond files rework drafts I had initially exported from Rosegarden.

These pieces are named for what strikes me as their "character" -- ultimately their comfy vs jagged patterns of volume distribution.

# Audio

I built each movement in Rosegarden's matrix editor, exported .mid files, and combined these as one .wav. Playing time is 78 secs.

# Dreadful '0'

Then, comeuppance. Browsing at the "On-Line Encyclopedia of Integer Sequences" (OEIS), I encountered for the first time Stern's biatomic array (<https://oeis.org/A002487>).

When run for two iterations beyond the series I had improvised, this one clearly *subsumed* the latter's output!

The difference, Stern seeds "0 1" replacing my hazarded "1 2", exposes something extraordinary at work: with this "0 1" start, every generator iteration first replicates the just-previous one, before appending then a continuation of its own.

OEIS presents several offshoots. My improvised script output the sequence as follows:

starting with0 1

one iteration giving0 1 1

the next0 1 1 2 1

and so on.

Run this way well into its 11th iteration (to build up from 0), the procedure now filled the 88-slot range only after 1276 terms, accumulating an occurrence-frequency maximum of 42.

Musical realization here, to be conceptually as before, called for selective re-specifying, as follows:

- there are now 42 unique-volume-specific tracks, necessarily at much narrower volume differences;
- tempo is now 4-fold, to put so many more events into a time span compatible with *Dapper '1'*;
- a 3-second coda cascades the first occurrences.

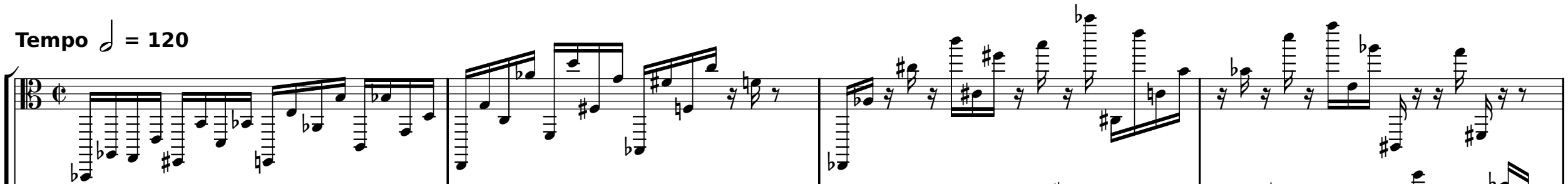
# Dapper '1'

for sequenced MIDI piano

Peter McKenzie Armstrong

Tempo  $\text{♩} = 120$

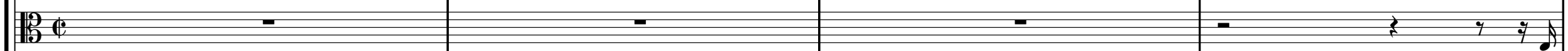
**Occur. 1**  
(Vel=120)



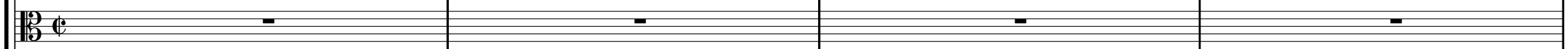
**Occur. 2**  
(Vel=70)



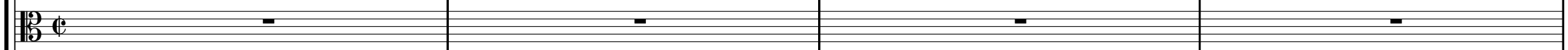
**Occur. 3**  
(Vel=65)



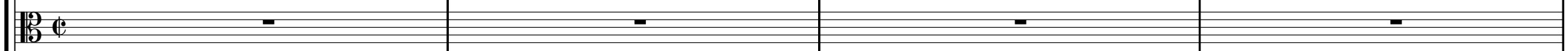
**Occur. 4**  
(Vel=60)



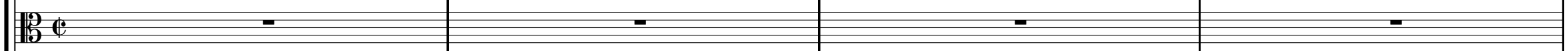
**Occur. 5**  
(Vel=55)



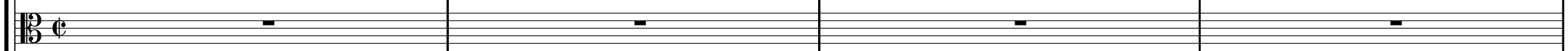
**Occur. 6**  
(Vel=50)



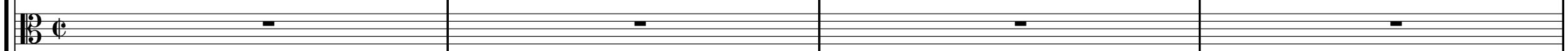
**Occur. 7**  
(Vel=45)



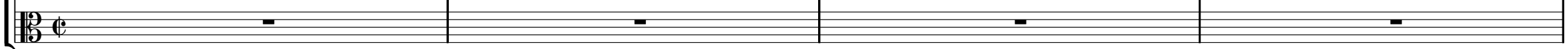
**Occur. 8**  
(Vel=40)



**Occur. 9**  
(Vel=35)



**Occur. 10**  
(Vel=30)



5

2

10

3

A musical score for 12 staves, organized into five measures. The notation is complex, featuring many beamed sixteenth and thirty-second notes, often with accidentals (sharps, flats, and naturals). The staves are numbered 1 through 12 on the left. The first five measures contain active musical notation, while the last two measures (measures 18 and 19) show mostly rests, indicating a final or concluding section of the piece.

The musical score consists of 12 staves, grouped into four systems of three staves each. The notation is complex, featuring many beamed notes and rests, suggesting a fast or intricate piece of music. The key signature is one sharp (F#) and the time signature is 3/4. The score is written in a standard musical notation style with a key signature of one sharp (F#) and a time signature of 3/4. The first system contains measures 1-3, the second system contains measures 4-6, the third system contains measures 7-9, and the fourth system contains measures 10-12. The notation is complex, featuring many beamed notes and rests, suggesting a fast or intricate piece of music.

The image displays a musical score for 12 staves, organized into four systems of three staves each. The notation includes various musical symbols such as notes, rests, and accidentals, indicating a complex musical composition. The staves are numbered 1 through 12 from top to bottom. The notation is written in a standard musical notation style, with notes, rests, and accidentals (sharps and flats) visible. The score is divided into measures by vertical bar lines. The first system (staves 1-3) shows a complex arrangement of notes and rests. The second system (staves 4-6) continues the musical development. The third system (staves 7-9) features more intricate melodic lines. The fourth system (staves 10-12) concludes the page with final notes and rests. The overall structure suggests a multi-instrument or multi-voice musical piece.



The image displays a musical score for 10 staves, organized into four measures. The time signature is 12/8, indicated by the '12' over the '8' in the first staff of each measure. The notation includes various musical symbols such as eighth notes, quarter notes, and rests. The score is written in a standard musical notation style, with notes and rests placed on the staves. The first measure contains several notes and rests, while the subsequent measures show a progression of musical ideas, including some notes with accidentals (sharps and flats). The score is presented in a clear, legible format, suitable for a music manuscript.